

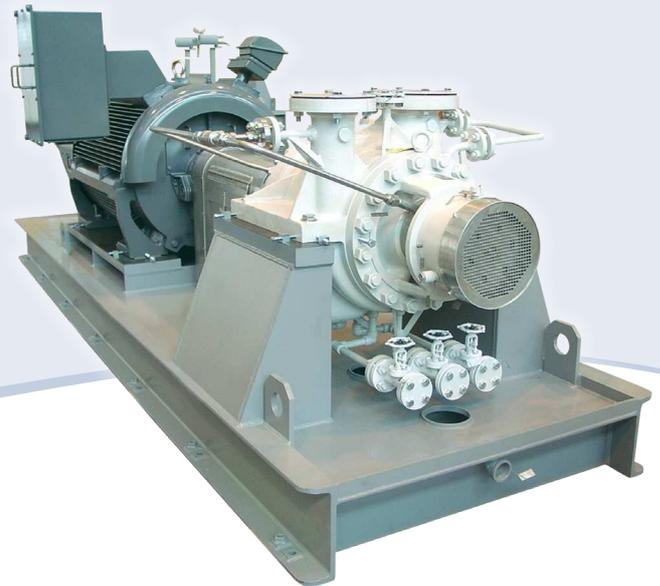


## **BXHHS and BXRH Series High-temperature metal bellows seals**



*Experience In Motion*

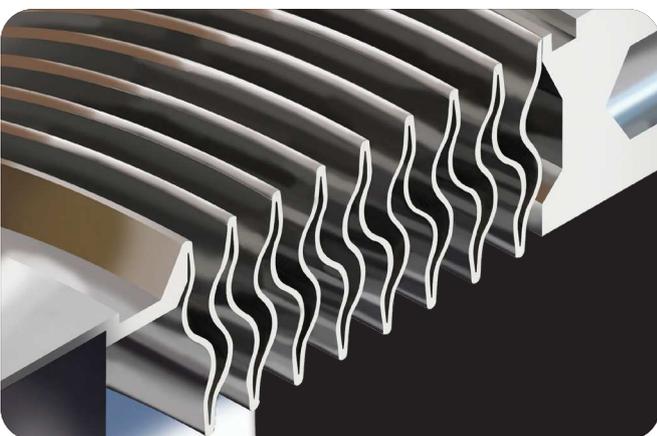
*BXHHS and BXRH seals provide sealing capability at extreme temperatures in challenging refinery and petrochemical services. When pumping services push beyond the temperature limits of elastomers, BXHHS and BXRH seals offer reliable sealing in single and dual seal configurations.*



## Go beyond elastomer limits

BXHHS and BXRH seals are loaded with features to handle high and low temperatures beyond where traditional O-ring seals can go. Flexible graphite secondary seals offer universal chemical compatibility at all temperatures between -73°C and 427°C (-100°F and 800°F). The unique fully nesting ripple bellows geometry with wide span convolutions assures low motion stress and lower spring rates, even with thick 0.2 mm (0.008 in) diaphragms. The advanced design of the bellows flange allows for a wide cross-section that stabilizes the thermal rotation of the seal face to maintain full face lubrication at high temperature. The mating seal face is securely seated on a graphite gasket to encourage heat transfer away from the seal face running surface while also enhancing face flatness at high temperatures.

BXHHS seals offer a rotating bellows that acts to clear convolutions and prevent accumulation of debris. The BXRH seals offer a stationary bellows that provides high-speed capability and tolerates out-of-square misalignment of the pump shaft to seal chamber face that can occur as the pump grows thermally.



*Unique fully nesting ripple bellows geometry*

### Applications

- Distillation tower bottoms
- Heat transfer fluids
- Fluid cat cracker slurry
- Hot hydrocarbons
- Cryogenics
- Asphalt
- Bitumen
- Gas oil

### Additional options

Available multi-port flush distributes flush fluid evenly around the seal faces for uniform cooling.

A circulating device integrated into the dual seal cartridge circulates barrier fluid to keep the seal faces cool. A circulating device is also available on single seals with Plan 23.

Available fixed, floating and segmented throttle bushings provide increasing levels of secondary leakage containment. GSDH dry running backup seals provide maximum secondary containment without the use of a barrier or buffer fluid.

### Available configurations

Arrangement 1 single seal

(Common Piping Plans 11, 13, 23, 32, 62)

**BXHHS**

**BXRH**

Arrangement 2 unpressurized dual wet seal

(Common Piping Plans 52, 55)

**BXHHS/BXHHS**

**BXRH/BXRH**

Arrangement 2 unpressurized dual seal with dry running backup

(Common Piping Plans 72, 75, 76)

**BXHHS/GSDH**

**BXRH/GSDH**

Arrangement 3 pressurized dual wet seal

(Common Piping Plans 53A, 53B, 53C, 54)

**BXHHSB/BXHHS**

**BXRH/BXRH**

## Handle shaft thermal expansion and corrosive fluids

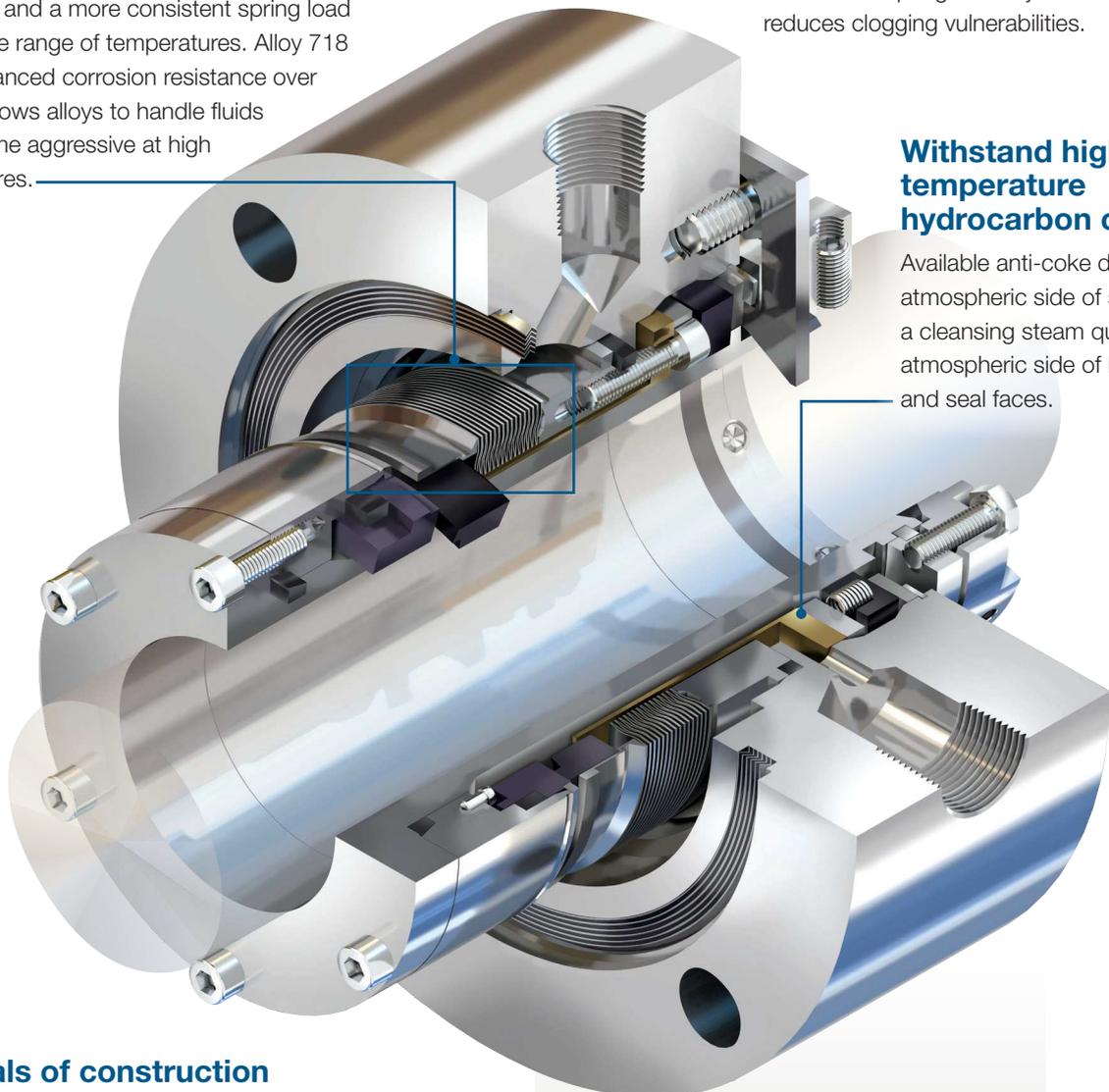
The extra-long Alloy 718 bellows core is 60% longer than traditional bellows seals, which allows for more axial travel and a more consistent spring load over a wide range of temperatures. Alloy 718 offers enhanced corrosion resistance over typical bellows alloys to handle fluids that become aggressive at high temperatures.

## Avoid hang-up

Absence of springs and dynamic elastomers reduces clogging vulnerabilities.

## Withstand high-temperature hydrocarbon coking

Available anti-coke device on atmospheric side of seal directs a cleansing steam quench to atmospheric side of bellows and seal faces.



## Materials of construction

<b>Metal Components</b>	316 Stainless Steel
<b>Metal Bellows</b>	Alloy 718
<b>Seal Faces</b>	Carbon, Silicon Carbide
<b>Gaskets</b>	Flexible Graphite

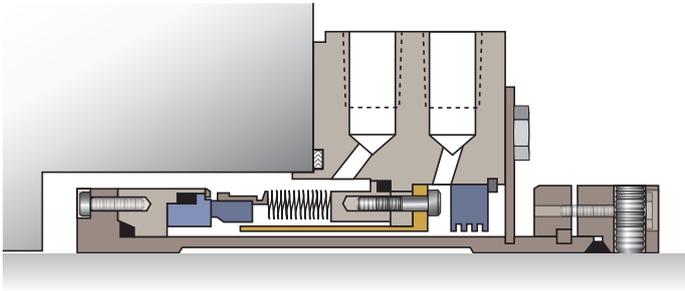
## Operating parameters

<b>Pressure</b>	up to 20.7 bar (300 psi)
<b>Temperature</b>	-73°C to 427°C (-100°F to 800°F)
<b>Speed</b>	up to 23 m/s (75 fps) BXHHS up to 46 m/s (150 fps) BXRH
<b>Shaft Sizes</b>	21.8 to 128.9 mm (0.857 to 5.073 in)

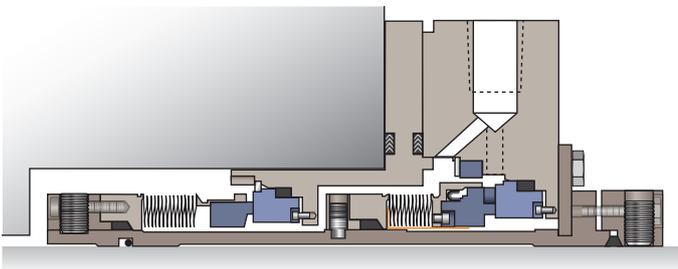


## Minimize the influence of thermal expansion on seal faces

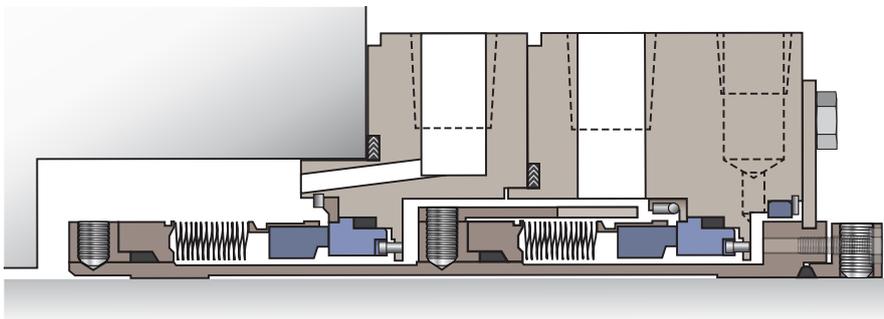
A hinged seal face flange and a full-length shrink fit assures thermal expansion has minimal impact on seal face flatness.



Arrangement 1 BXRH seal with anti-coke device is an industry standard single seal.



Arrangement 2 BXHHS/GSDH seal provides best leakage containment without a liquid buffer/barrier fluid.



Arrangement 3 BXHHSB/BXHHS seal provides zero emissions sealing.

SSFLY000361-01 (EN/A4) November 2021

**Headquarters**

Flowserve Corporation  
5215 North O'Connor Blvd.  
Suite 700  
Irving, Texas 75039-5421 USA  
Telephone: +1 937 890 5839

**USA and Canada**

Kalamazoo, Michigan USA  
Telephone: +1 269 381 2650

**Europe, Middle East, Africa**

Etten-Leur, The Netherlands  
Telephone: +31 765 028 200

**Asia Pacific**

Singapore  
Telephone: +65 6544 6800

**Latin America**

Mexico City  
Telephone: +52 55 5567 7170

Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected, this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation, and maintenance of Flowserve products. The purchaser/user should read and understand the Installation Instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

While the information and specifications contained in this literature are believed to be accurate, they are supplied for informative purposes only and should not be considered certified or as a guarantee of satisfactory results by reliance thereon. Nothing contained herein is to be construed as a warranty or guarantee, express or implied, regarding any matter with respect to this product. Because Flowserve is continually improving and upgrading its product design, the specifications, dimensions and information contained herein are subject to change without notice. Should any question arise concerning these provisions, the purchaser/user should contact Flowserve Corporation at any one of its worldwide operations or offices.

©2021 Flowserve Corporation. All rights reserved. This document contains registered and unregistered trademarks of Flowserve Corporation. Other company, product, or service names may be trademarks or service marks of their respective companies.